and 8.51% (SE = 2.00, N = 13) for females. The fat mass of sharp-shinned hawks averaged 5.55% (SE = 0.94, N = 53) for males and 10.92% (SE = 0.80, N = 87) for females. Male merlins had an average fat mass of 18.05% (SE = 3.35, N = 7) and females averaged 14.19% (SE = 3.15, N = 8).

NEST-SWITCHING BEHAVIOR IN JUVENILE OSPREYS: A FORTUNATE ACCIDENT OR OPTION FOR SURVIVAL?

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In 1993–94 I examined postfledging behaviors of young ospreys (*Pandion haliaetus*) at Cascade Reservoir, Idaho. I observed single and three-young broods to examine effects of brood size, food distribution, and competition among nest-mates on subsequent fledgling behaviors. I monitored movements, behavior, and interactions of nine fledglings in 1993 (three from single nests, six from sibling groups) and 16 fledglings (seven singles, nine siblings) in 1994. At least three and possibly six fledglings switched from their natal nest to another nest occupied by breeding ospreys in 1993. In 1994, three fledglings have moved to nests occupied by reproductive pairs; one switched into the nest of a nonreproductive pair. Analyses of food intake and behavior at nonnatal nests will indicate whether nest-switching is a behavioral strategy to improve individual fitness or a random event.

REPRODUCTION AND DISTRIBUTION OF BALD EAGLES IN VOYAGEURS NATIONAL PARK, MINNESOTA, 1973–93

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The bald eagle (*Haliaeetus leucocephalus*) is classified as a threatened species in Minnesota. In 1973 the National Park Service began monitoring bald eagle distribution and breeding success within and immediately adjacent to Voyageurs National Park, to obtain data that could be used by park management to protect eagles from the impacts of visitor use and facility development. Thirty-seven breeding areas were identified from 1973–93. Mean productivity ranged from 0.00–1.42 young per occupied nest and averaged 0.68 for 21 breeding seasons. The number of breeding pairs tripled and the mean number of young fledged increased five times during the study period. The percentage of success for breeding attempts doubled. However, in over three-fourths of the years, mean productivity and percent nest success in Voyageurs were below the 1.00 young per occupied nest and 70% percent nest success criteria considered necessary for healthy bald eagle populations. We suspect a complex of variables including toxic substances, human disturbance, severe weather and food source availability in early spring may have kept bald eagles at Voyageurs from achieving productivity levels similar to the nearby Chippewa National Forest population in northcentral Minnesota. The cumulative effects of these variables on bald eagle productivity and habitat are unknown and should be determined. Breeding pairs preferred pine covered island nest sites on the park's four major lakes near areas free of ice in early spring. Ninety percent of the 129 nests observed were built in super canopy white pines. Only one nest was built on one of the 31 smaller park lakes.

AUTUMN MOVEMENTS OF RADIO-TAGGED JUVENILE RED-TAILED HAWKS IN CENTRAL COASTAL CALIFORNIA

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From 1990–93, nine juvenile red-tailed hawks (*Buteo jamaicensis*) have been radiotagged in the Marin Headlands, Marin County, California. Each hawk was tracked after release by three teams of volunteers of the Golden Gate Raptor Observatory. The overall movements of these hawks is to the southeast. One bird flew 315 km northwest after release, although it was later rediscovered 200 km southeast of the Headlands. The pattern of these red-tailed hawks is similar to the locations of banded juvenile redtails recovered within a few months of release. The tagged red-tailed hawks were seen to cross San Francisco Bay without hesitation. Total migration distance for these hawks ranged from 51 km to 445 km, and no bird was observed to travel south of Los Angeles or east of the Central Valley. These data suggest that many of the juvenile red-tailed hawks passing through the Marin Headlands in autumn are travelling to areas south of San Francisco within 100 km of the Pacific coast.

ACTIVITY AND CORTICOSTERONE LEVELS IN FOOD RESTRICTED POSTFLEDGING AMERICAN KESTRELS (*FALCO SPARVERIUS*)

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Departure from the natal area occurs in many bird species during the postfledging period, but the corresponding physiological and proximate factors responsible for this movement remain unclear. Physiological and proximate factors may involve environmental conditions (food availability), vulnerability to environmental conditions (physical condition), and hormonal responses. Corticosterone is the major hormone involved in stressful situations, such as anticipation of starvation, and may be related to increased foraging and locomotor activity. In the laboratory, we studied activity and corticosterone levels in 12 post-